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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,160	09/10/2001	Akiyoshi Kabe		9208

7590 08/25/2005  
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EXAMINER

RUTTEN, JAMES D

ART UNIT	PAPER NUMBER
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2192

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,160

Applicant(s)

KABE, AKIYOSHI

Examiner

J. Derek Rutten

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 May 2005 has been entered.
2. Claims 1-10 have been amended, no claims have been canceled, and new claims 11-13 have been added. Claims 1-13 remain pending in the application and have been fully considered by the examiner.

### ***Response to Arguments***

3. Applicant's arguments, see page 2, filed 23 May 2005, with respect to the rejection(s) of claim(s) 1 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent 6,112,024 to Almond et al. in view of U.S. Patent 5,453,933 to Wright et al.

### ***Drawings***

4. Figure 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR

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1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. Figure 8 is described in the originally filed specification on pages 2-10 in the "Background Art" section, as well as in the "Brief Description of Drawings" section on page 14. The figure is described as "a conventional control system" (page 14), and thus illustrates that which is old.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 17 ("peripheral device 17" – page 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 2 and 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 2 uses language that makes the claim somewhat unclear. The phrase “notifying said object to the program generation tools” is awkward and could be interpreted in more than one way. For the purpose of further examination, this phrase is interpreted as --notifying the program generation tools--.

9. Claims 6, 8 and 10 contain language similar to claim 2 and will be likewise interpreted.

10. Claim 9 uses awkward language similar to claim 2. For the purpose of further examination, the phrase “the object is notified to a storage area” will be interpreted as --the object is stored in a storage area--.

11. Claims 7-9 are rejected as being dependent upon a rejected base claim.

12. Claim 10 contains the phrase “information on the object...” in line 7. It is not clear if this means information actually contained *on*, or *in*, the object, such as variable information or executable code; or if this means information *about* the object, such as a name or address of the object. For the purpose of further examination, this limitations will be interpreted as meaning --information about the object--.

13. Claim 1 recites: “A programming device...”. However, the rest of the claim fails to provide any support or description of such a device. Although “program generation tools” have been recited, these are interpreted as software elements and do not provide support for a device. Further recitation of a “data sharing unit” is interpreted in light of the specification to refer to software elements. Thus, no elements have been found to give form to any programming device.

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14. Claims 2-4 and 11-13 are rejected as being dependent upon a rejected base claim.

15. Claim 5 recites: "A programming device...". However, the rest of the claim fails to provide any support or description of such a device. Although "program generation tools" have been recited, these are interpreted as software elements and do not provide support for a device.

16. Claims 6-9 are rejected as being dependent upon a rejected base claim.

***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 1, 3-5, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,112,024 to Almond et al. (hereinafter "Almond") in view of U.S. Patent 5,453,933 to Wright et al. (hereinafter "Wright").

In regard to claim 1, Almond discloses:

*A programming device* (See Almond column 50 line 56-column 52 line 16)

*comprising:*

*a group of program generation tools to generate programs* See column 5 line 65

– column 6 line 7:

As shown, the interfaces 240 communicate or "talk" (i.e., communicates via an understood protocol) with various clients. Client 250, for example, comprises a PowerBuilder™ development environment which is executing on a client machine (e.g., workstation or personal computer connected to a network). Other clients, such as rapid

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application development environment 260 (e.g., Powersoft Optima++™) and C++ development environment 270 (e.g., Microsoft® Visual C++), communicate with the Object Cycle Server 211 via the interfaces 240.

*a data sharing unit adapted to interface with said group of program generation tools to share a variable name and attribute data definitions corresponding to an object of each of said plurality of devices , See column 5 lines 48-49, and column 8 lines 16-18*

The Object Cycle Server 211 communicates over a wire or a network with multiple clients. In particular, the Object Cycle Server 211 includes a Remote Procedure Call (RPC) interface 215, which allows the server 211 to be easily integrated into the operation of the various clients. In an exemplary embodiment, the RPC interface 215 employs Microsoft Remote Procedure Call protocol (available from Microsoft Corp. of Redmond, Wash.) for surfacing an Object Cycle API (Application Programming Interface) 240a, 240b, 240c, 240d for use by each of the development system clients.

...

As illustrated in FIG. 7B, the user can select (e.g., right click) individual objects for requesting actions (e.g., check out and check in) and properties specific to the object.

Note that a name is inherently shared in order to reference the properties (attribute data definitions) that correspond to an object. If the name is not shared, then there is no point of reference for a client to reference properties. Also, FIG. 2 shows that objects associated with each client (device), are shared by an object server (data sharing unit).

*wherein the objects are shared by said program generation tools for generating the programs. See column 2 lines 46-48:*

The RPC interface allows the system to surface an Object Cycle API (Application Programming Interface) for development system clients.

Almond does not expressly disclose a control system that controls a group of external machines. However, in an analogous environment, Wright teaches: *for each of a plurality of devices forming part of a control system that controls a group of external machines* See Wright column 6 lines 29-40:

A second class of object types is provided which represent instances of machine tool components, such as a table (axes), a spindle, tool changer or operator console. Again, some objects may inherit attributes of other objects. For example, an axis group, namely an object for simultaneously controlling multiple axes to shape complex three-

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dimensional objects, may be inherit attributes of a single axis object. Other objects may be composite objects of other tool objects. For example a tool changer may be a composite object of a collection of different milling bits which may be held in the tool changer (in addition to having its own attributes).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wright's teaching of a control system of external machines with Almond's data sharing unit. One of ordinary skill would have been motivated to share and reuse compositions of previously defined objects (Wright column 5 lines 58-62).

In regard to claim 3, the above rejection of claim 1 is incorporated. Almond further discloses: *an object data definition unit adapted to perform data definition and data modification of the objects shared in the data sharing unit, wherein all objects involved in the object sharing are centrally managed.* See column 2 lines 39-42.

In regard to claim 4, the above rejection of claim 1 is incorporated. Almond further discloses: *a system configuration tool, being registered with a subset of objects, said subset of said objects being basic type objects having a high frequency of use in the devices in the control system, the system configuration tool being adapted to select an object from the basic types objects for use in the control system.* See column 8 lines 16-27.

In regard to claim 5, Almond discloses:



*Wherein the variable name and attribute data corresponding to said object are stored for use by program generation tools other than said one of the program generation tools.* See column 2 line 66 – column 3 line 2:

The approach allows a multi-tool environment, each concerned with the development of its own particular type of object (e.g., a .cpp file for Microsoft Visual C++) to share a version control repository. From the perspective of the Object Cycle Server, each client is simply "a client" (without regard to proprietary nature) which desires to store "an object." The Object Cycle Server, in turn, **maps the object into a schema--a meta model--which facilitates version control.**

All further limitations have been addressed in the above rejection of claim 1.

In regard to claim 11, the above rejection of claim 1 is incorporated. Almond does not expressly disclose: *wherein the plurality of devices include a display device, said display device for displaying the status of each of the machines.* However, Wright teaches the use of a status display. See column 1 lines 27-30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wright's status display for devices with Almond's data sharing unit. One of ordinary skill would have been motivated to display the status of devices that are associated with objects in a system in order to detect the occurrence of a fault.

In regard to claim 12, the above rejection of claim 1 is incorporated. Almond does not expressly disclose: *wherein the plurality of devices includes a system supervision device, said system supervision device for detecting an abnormal condition of a production line comprising the group of machines.* However, Wright teaches a system supervision device that detects abnormal conditions in a CNC machine. See column 2

lines 15-20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wright's supervision device with Almond's program generation tools. One of ordinary skill would have been motivated to program a supervision device to provide fault messages to a group of objects in order to provide manageable system fault behavior.

In regard to claim 13, the above rejection of claim 1 is incorporated. Almond does not expressly disclose: *wherein the plurality of devices includes a programmable controller for controlling one or more of the machines*. However, Wright teaches the use of a programmable motion controller that controls motor movement in machines. See column 2 lines 2-15. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wright's programmable motion controller with Almond's program generation tools. One of ordinary skill would have been motivated to program a motion controller to provide a desired function.

19. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Almond and Wright as applied to claims 1, 3-5, and 11-13 above, and further in view of "Versions and change notification in an object-oriented database system" by Chou et al. (hereinafter "Chou").

In regard to claim 2, the above rejection of claim 1 is incorporated. Almond does not expressly disclose notification in relation to programming objects in terms of a particular reference tool. However, in an analogous environment, Chou teaches:

*programming action in one of the program generation tools relating to an object acts as a trigger to store a setting of the object to the data sharing unit together with an indication of the program generation tools which reference said object, and the sharing of said object with other program generation tools other than said one of the program generation tools includes notifying said object to the program generation tools other than said one of the program generation tools which reference said object. See Section 4.3 on page 280.*

As per claim 10, Almond discloses:

*A programming method ..., the method comprising:*

*according to a pre-designed virtual object, defining an object name and attribute*

*data See column 2 lines 57-59:*

Here, the client can instruct the system to check in any arbitrary object which the user desires versioning control for.

*registering information about the object ...in a data sharing unit; See column 2 lines 57-59 as cited above.*

*notifying a program generation tool for the specified devices that will use the object; and Chou*

Almond does not expressly disclose the specification or programming of a device that will use the object. However, in an analogous environment, Wright teaches: *specifying a device that will use the object, and... performing programming of the devices by the notified program generation tools. Wright. See column 6 lines 43-48:*

For example a drill process object can be defined to hold all the information needed to define a drilling process, and this information may be sent in a message to an Machine

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Class spindle object (to move the spindle down and form the hole) and to an axis group object (to position the workpiece in the proper location).

All further limitations have been addressed in the above rejection of claims 1 and 2.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Wright's device programming with Almond's data sharing unit. One of ordinary skill would have been motivated to provide a machine control system that is easily modifiable (Wright column 5 lines 58-62).

20. Claims 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over SNAP and Kodosky as applied to claim 5 above, and further in view of U.S. Patent 5,907,705 to Carter (hereinafter referred to as "Carter").

As per claim 6, the above rejection of claim 5 is incorporated. SNAP does not expressly disclose information about whether or not the object is referenced by program generation tools other than said one of the program generation tools that are registered as using the object are notified.

However, in an analogous environment, Carter teaches notifying users of an object when the object is changed (column 4 lines 55-59). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Carter's teaching of notification in Almond's Object Cycle Server. One of ordinary skill would have been motivated to alert any potentially impacted user or tool of changes in an object.

As per claim 8, all limitations have been addressed in the above rejection of claim 6.

In regard to claim 9, Almond discloses saving objects in a storage area for subsequent retrieval. See Fig. 2 element 220.

21. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Almond, Wright, and Carter as applied to claim 6 above, and further in view of “Linkers & Loaders” by Levine (hereinafter referred to as “Levine”).

As per claim 7, the above rejection of claim 6 is incorporated. Almond does not expressly disclose *a detection unit adapted to detect any overlap at a referenced part among the objects when a program is generated by the program generation tools other than said one of the program generation tools.*

However, in an analogous environment, Levine teaches that programs can be created from multiple subprograms, but that the subprograms have to be loaded at non-overlapping addresses (page 5 bullet 2: “Relocation”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Levine’s teaching of non-overlapping subprograms in Almond’s program generation device. One of ordinary skill would have been motivated to protect the integrity of each object by separating their address space.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (571) 272-3703. The examiner can normally be reached on T-F 6:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jdr

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**PRIMARY EXAMINER**

  
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